REMARKS

Applicants note with appreciation that, in the Advisory Action dated May 17, 2005, claims 4, 5, 7, 17, 18, 20 and 27 were objected to, indicating that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, claims 1-3, 6, 8-16, 19, 21, 21-26 and 28-33 were still rejected. Presumably, claims 1-3, 9, 11-16, 21, 23-26, 30 and 32-33 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Herley (U.S. Patent No. 5,838,818). In addition, claims 6, 8, 19 and 28 are presumably rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Herley in view of Zhang et al. (U.S. Patent No. 6,731,794). Furthermore, claims 10, 22, 29 and 31 are presumably rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Herley in view of Tao (WO 01/26359).

In response, Applicants respectfully request reconsideration in view of the following remarks.

A. Patentability of Independent Claims 1, 13 and 24

The Advisory Action in short states that the color interpolation (demosaicing) of Herley "**inherently**" incorporates a DCT operator because Herley "expressly mentioned both color interpolation and DCT coefficients of JPEG." Applicants respectfully disagree with this interpretation, as explained below.

The independent claim 1 recites an element of *"processing said mosaiced image using a demosaicing operator on blocks of said mosaiced image to derive a representation of a demosaiced image, said demosaicing operator incorporating a frequency-based transformation operator to take into account a subsequent frequency-based compression process"* (emphasis added). Thus, the core issue with respect to claim 1 is whether Herley discloses a *"demosaicing operator"* that incorporates *"a frequency-based transformation operator"*, as recited in claim 1.

The cited reference of Herley does not explicitly disclose such a "demosaicing operator", as acknowledged by the Examiner since the Advisory Action has used the

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term "inherently". Thus, the issue turns to whether Herley discloses a demosaicing operator that inherently incorporates a frequency-based transformation operator. While the Advisory Action correctly states that Herley mentions both color interpolation and DCT coefficients of JPEG, the Examiner has drawn an erroneous conclusion with respect to the color interpolation described in Herley.

As cited in the Advisory Action, Herley states in column 4, line 66, to column 5, line 6, the following:

> "We would like to color interpolate the image so that each DCT coefficient is close to being an integer times the stepsize for that coefficient. Thus we have two requirements of the 24-bit color image:
> (1.) DCT coefficients of the image should equal quantizer reconstruction levels.
> (2.) Image should equal the measured data at the mosaic locations."

The reference to "DCT coefficients" in the above passage does not indicate that the "DCT coefficients" are involved during the color interpolation. Rather, in the context of the overall process of Herley, the reference to "DCT coefficients" is presumably directed to compression and decompression.

The above conclusion is supported in Herley, which further states in column 5, lines 7-10, that "[i]n fact of course we can probably not satisfy both constraints, and will settle for approximately satisfying the first" and that "[i]t is not immediately apparent how this can be achieved, however." More importantly, Herley then describes in column 5, lines 11-30, how this can be achieved, which is by using an iterative process of JPEG encoding and decoding, followed by overwriting the original mosaic data values to the output of the decoder. This iterative process is performed after color interpolation, as stated in column 5, lines 11-12. The color interpolation is presumably the process described in column 3, line 12, to column 4, line 38, which involves averaging values measured by red, green and blue sensors (See column 4, lines 21-28), NOT a process using a *"demosaicing operator incorporating a frequency-based transformation operator,"* as recited in claim 1.

Since Herley does not disclose the recited element of *"processing said mosaiced image using a demosaicing operator on blocks of said mosaiced image to derive a representation of a demosaiced image, said demosaicing operator incorporating a frequency-based transformation operator to take into account a subsequent frequency-based compression process,"* the independent claim 1 is not anticipated by the cited reference of Herley. As such, Applicants respectfully request that the independent claim 1 be allowed.

The above remarks regarding the independent claim 1 are also applicable to the independent claim 13, which recite similar limitations, and to the independent claim 24, which recited similar limitations with respect to a system for processing a mosaiced image. Therefore, Applicants respectfully assert that the independent claims 13 and 24 are also not anticipated by the cited reference of Herley.

B. Patentability of Dependent Claims 2, 3, 14, 15 and 25

The Advisory Action correctly states that "Herley expressly mentions 'raw image 100 under goes space transformation and [interpolation] 130 before being compressed 140 (fig. 1, col. 2 lines 54-56)' and 'it is first necessary to transform to a luminance/chrominance space such as YUV [or] YCrCb.'" Since the dependent claims 2, 3, 14, 15 and 25 recite a *"demosaicing operator"* that includes *"a color space conversion operator,"* the Advisory Action is presumably stating that the color interpolation of Herley includes space transformation.

However, Herley further states in column 3, lines 10-12, "[t]o carry out this transformation it is first necessary to demosaic the image to have a full 24-bit image." Thus, Herley clearly states that the image first undergoes demosaicing and then space transformation. Consequently, the cited reference of Herley DOES NOT disclose a *"demosaicing operator"* that includes *"a color space conversion operator"*, as recited in claims 2, 3, 14, 15 and 25. Thus, these dependent claims are not anticipated by the cited reference of Herley.

C. Patentability of Dependent Claims 9, 21 and 30

The Advisory Action has provided two interpretations of the claim language for the dependent claims 9, 21 and 30. The first interpretation is correct since claims 9, 21 and 30 recite using a *"demosaicing operator incorporating a frequency-based transformation operator"* in which the frequency-based transformation operator is *"a DCT-based transformation operator"*. However, the "DCT requirement to color interpolation" described in Herley does not disclose using a demosaicing operator incorporating a DCT-based transformation operator, as recited in claims 9, 21 and 30. Therefore, the dependent claims 9, 21 and 30 are not anticipated by the cited reference of Herley.

F. Patentability of Dependent Claims 6, 8, 10-12, 16, 19, 22, 23, 26, 28, 29 and 31-33

Each of the dependent claims 6, 8, 10-12, 16, 19, 22, 23, 26, 28, 29 and 31-33 depends on one of the independent claims 1, 13 and 24. As such, these dependent claims include all the limitations of their respective base claims. Therefore, Applicants submit that these dependent claims are allowable for at least the same reasons as their respective base claims.

Applicants respectfully request reconsideration of the claims in view of the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

Baharav et al.

Date: June 10, 2005

By: _Thomas A. Ham_

Thomas H. Ham
Registration No. 43,654
Telephone: (925) 249-1300

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